

LND150 FX-Loop

Serial FX-Loop

PCB Version V1-Rev C – Date: 19.06.2019

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Introduction

The Tube-Town FX-Loop is an active effect loop designed as retrofit kit for tube amplifiers for guitar or bass guitar.

The module works with the typically high supply voltage in a tube amplifier (DANGER TO LIFE) and is powered by the power supply of the amplifier. By using two LND150, the power consumption is very low.

The module is neutral and universally designed, as good as possible, so it can be installed and operated in a variety of amplifiers. On the following pages a few examples are outlined how and where in the circuit an integration can be realized. Due to the large number of amplifiers, it is not possible to provide guides or installation instructions for all models.

Hints

Manufacturers and distributors are not liable or responsible for the consequences of inappropriate use, installation errors or operation errors of this product due to disregard of the manual. The installation should only be completed by qualified personnel.

The contents of this manual are subject to change without notice.

Warning

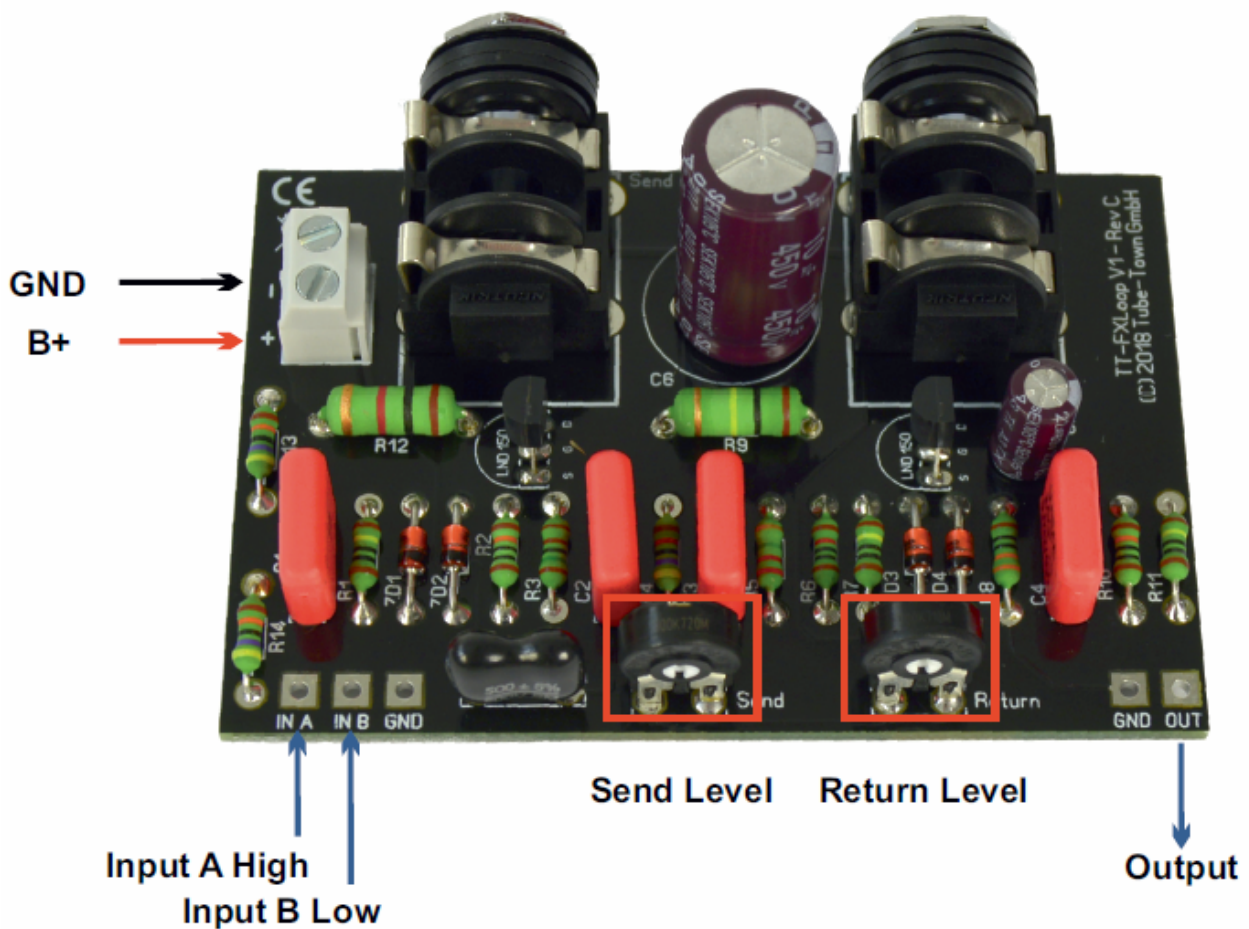
This module works with voltages which are potentially fatal. This kit is NOT a beginner's project!

A successful build requires you can read (and understand) a schematic diagram, you know how to use various measuring devices, and you have some experience working with voltages higher than 60V.

Specification

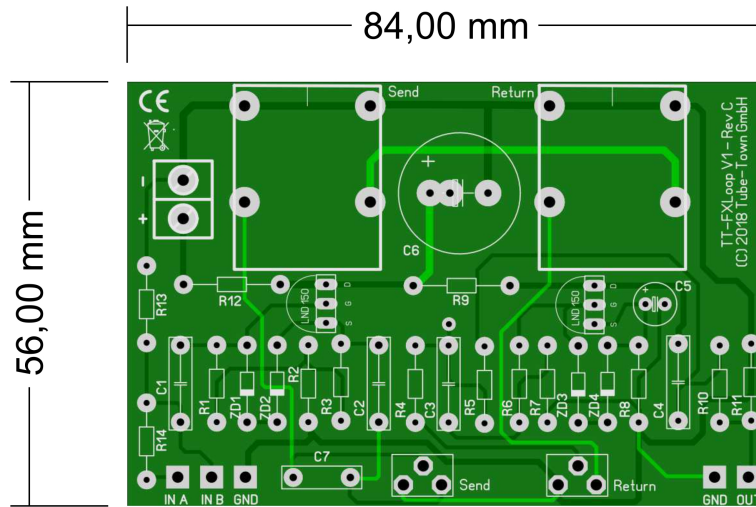
InB input signal level:	1 - 15 Vpp
InB maximum input:	20 Vpp
InA input signal level:	20 - 40 Vpp
InA maximum input:	40 Vpp
Supply voltage:	250 - 400 VDC

Layout and Connections

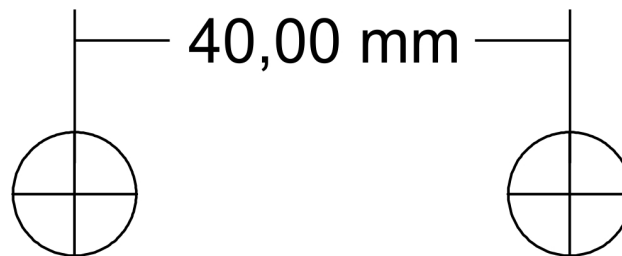


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PCB Size



Mounting



List of Components

Component	Value
C1, C2, C3, C4	22 nF / 400V
C5	22 μ F / 63V
C6	10 μ F / 450V
C7	500 pF / 500V
Q1, Q2	LND150
R1, R7, R11	1 MOhm
R2, R10	100 kOhm
R3	1,5 kOhm
R4	47 kOhm
R5	2,2 MOhm
R6	10 kOhm
R8	330 Ohm
R9	100 kOhm / 2W
R12	1 kOhm / 2W
R13, R14	Depending on use*
ZD1 - ZD4	BZX85C18
P1 (Send)	100 kOhm
P2 (Return)	500 kOhm

* see the following paragraph „input voltage divider“

General hints for integration

Depending on the circuit the loop is integrated in it may be necessary to adjust the input voltage divider (R13/R14). As a starting point a ratio of 1:10 is recommended for testing if the loop or the effects distort in an unpleasant way. If the signal level is too high the next higher resistor value for R14 can be tested.

Input Voltage Divider

The following table shows an overview of possible resistor combinations for the input voltage divider and the resulting ratio. The needed resistors for the listed combination are included in the kit (since batch 19.06.2019).

R14	R13	ratio
470 kOhm	100 kOhm	ca. 1:5
1 MOhm	100 kOhm	ca. 1:10
1,5 MOhm	100 kOhm	ca. 1:15
2,2 MOhm	100 kOhm	ca. 1:22

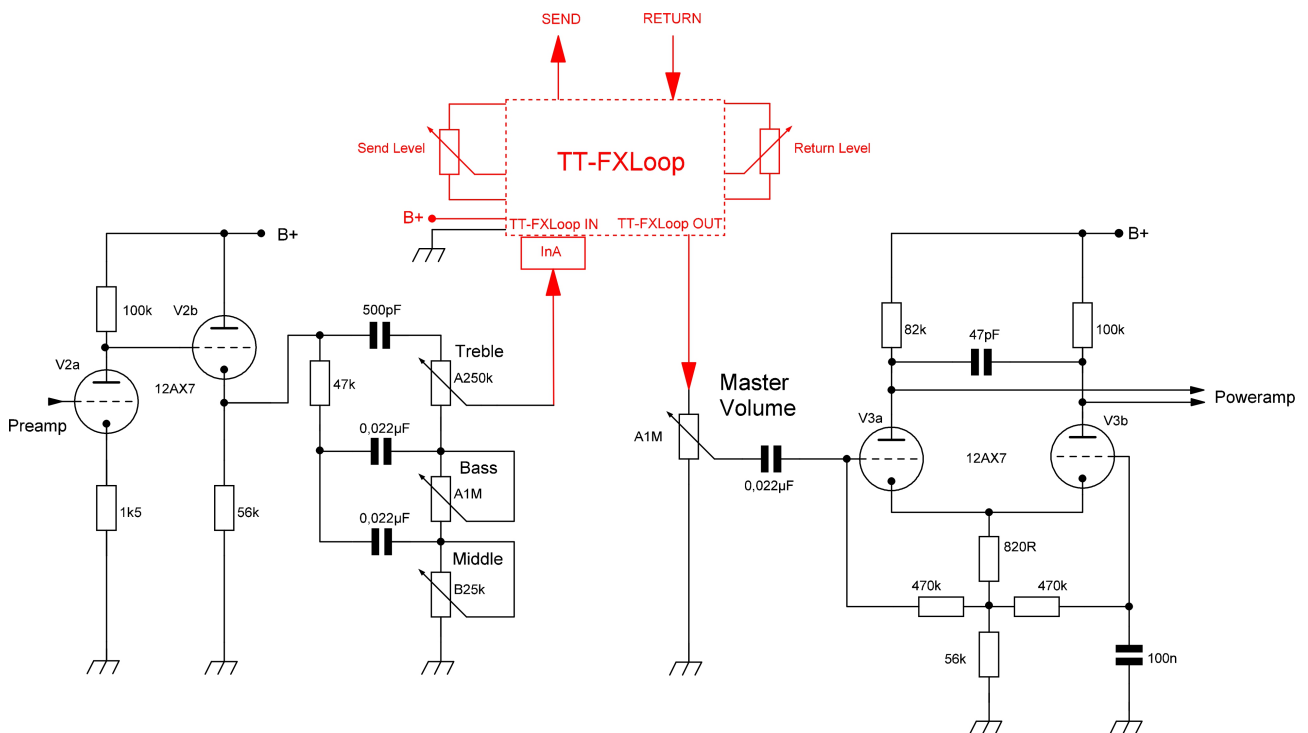
C7 is optional, if the loop sounds too bright in your configuration try removing this capacitor.

Insert Example I

Installation Example: FX-Loop between tonestack and master volume in an 18 Watt style amplifier. Other configurations are possible as long as the maximum signal level is not exceeded.

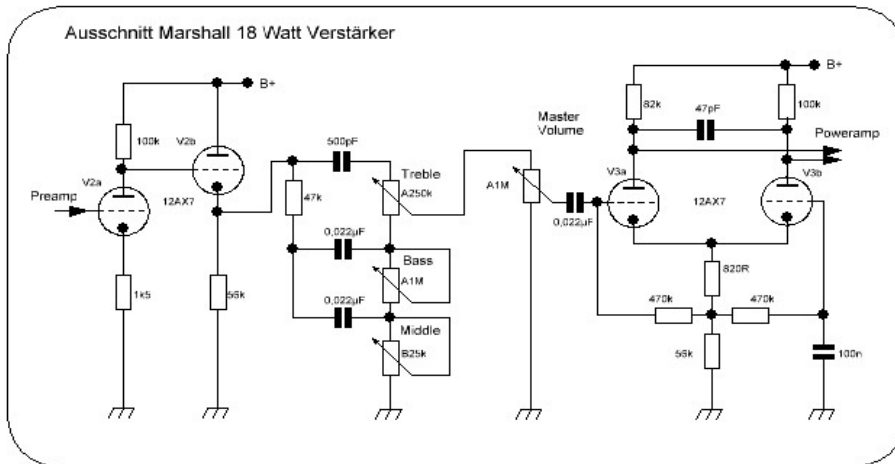
Input:

Use Input InA for Signal levels from 20 - 40 Vpp or Input InB for signal levels from 1 - 15 Vpp.



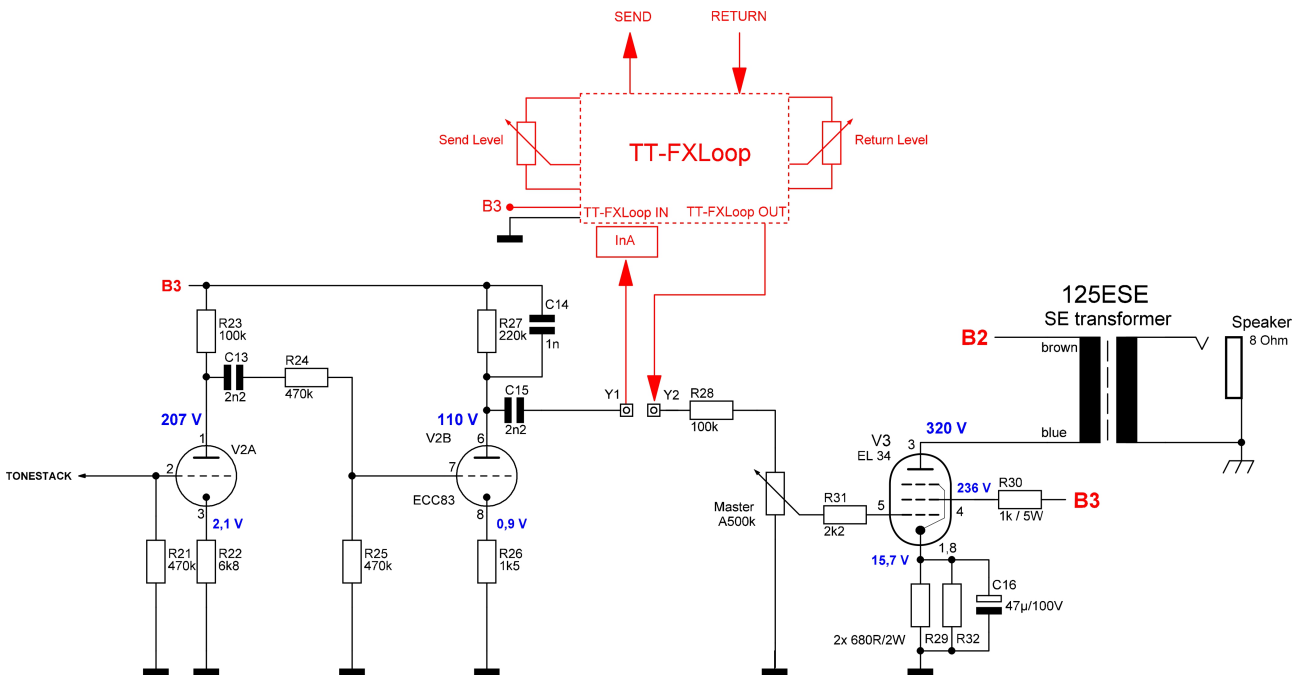
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Schematic without loop as reference:



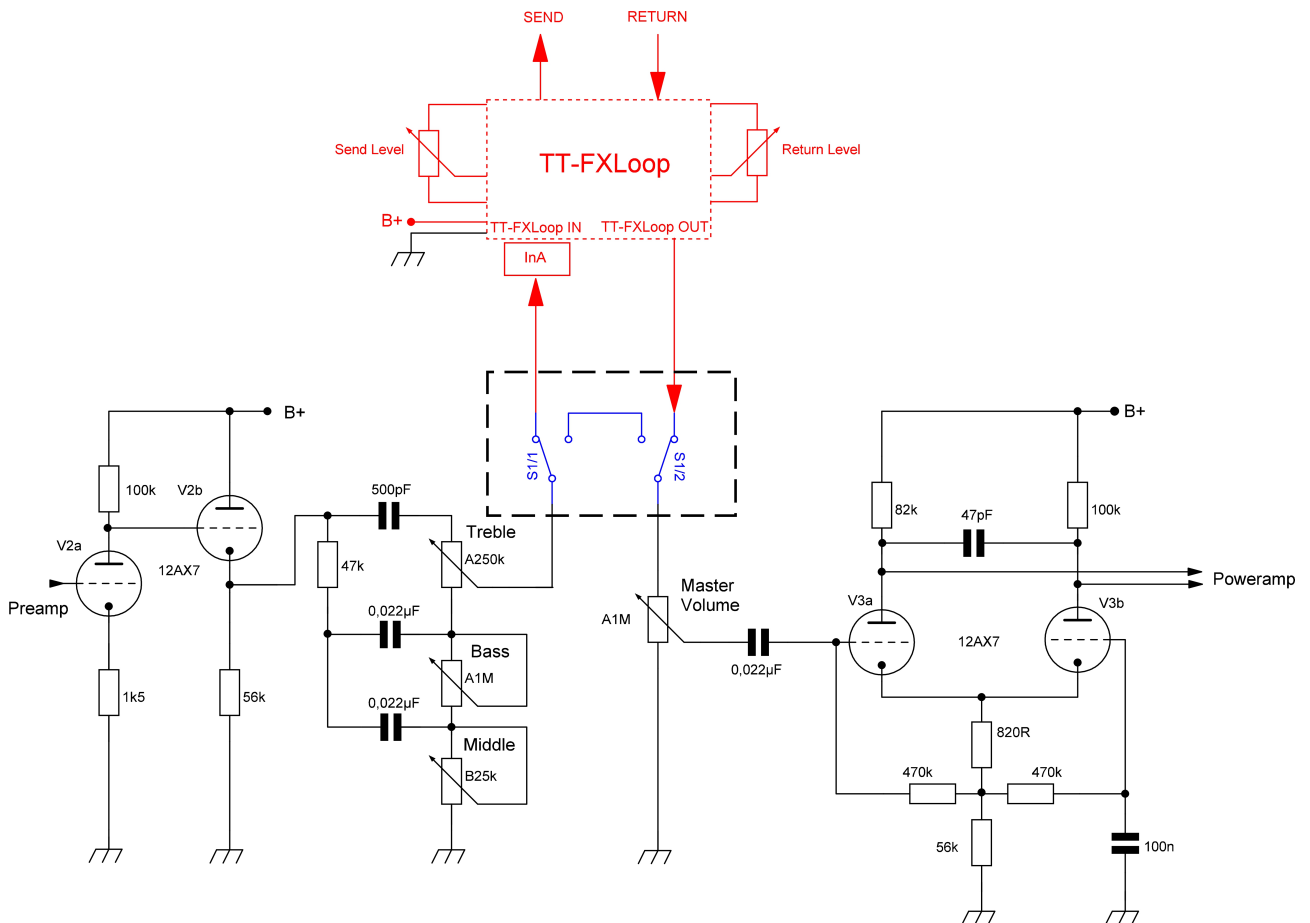
Insert Example II

FX-Loop before the master volume in a Jim HP amplifier. Other configurations are possible as long as the maximum signal level is not exceeded. We recommend a value of 1,5 MOhm - 2,2 MOhm for R14 on the loop pcb in this configuration.



True Bypass

With an optional switch it is possible to install a true bypass for the effect loop and take it out of the signal chain when not in use. This can also be realized with a relay, for example with the relay switching kit with the article number kit-chsw2-6.

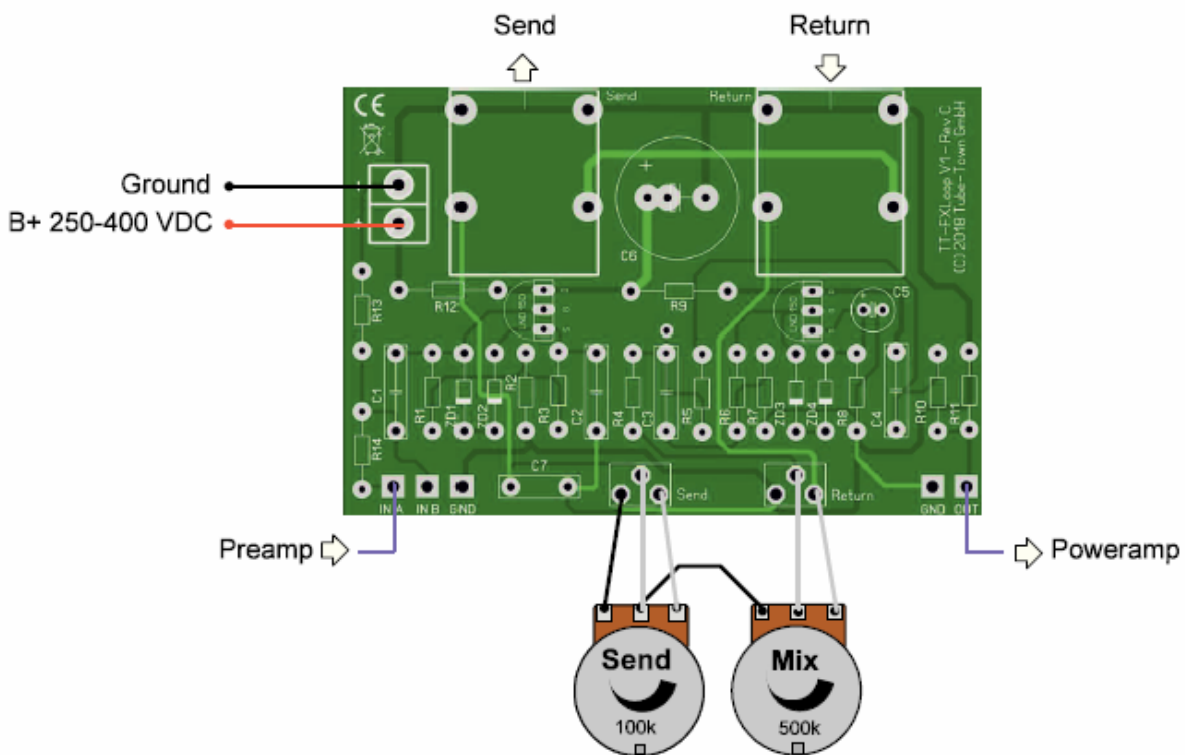
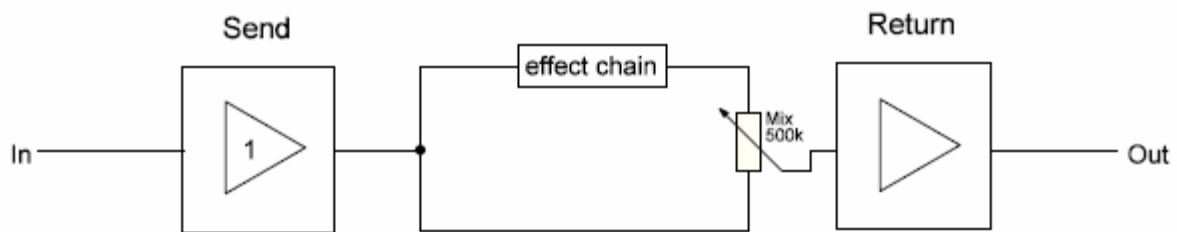


Loop in parallel mode

Through simple rewiring the loop can also be used in parallel mode, where a portion of the dry signal gets mixed with the effect signal.

Please note:

Some effect units change the phase of the signal. This can lead to phase cancellations if the effect signal is out of phase with the dry signal.



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Test Points

Example measurements with a supply voltage of 370 VDC applied.

